

OCT 17 2005

Serial No. 10/763,955
60130-2008; 02MRA0227

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Thomas
Serial No.: 10/763,955
Filed: January 23, 2004
Group Art Unit: 3683
Examiner: Torres, Melanie
Title: DISC BRAKE PAD BACKPLATE ASSEMBLY

16 x 2

APPEAL BRIEF

Mail Stop – Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Subsequent to the filing of the Notice of Appeal on August 11, 2005 and received by the United States Patent and Trademark Office on August 15, 2005, Appellant hereby submits its brief. The Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, P.C. \$500 for the appeal brief fee. If any additional fees are due, the Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, P.C. for any additional fees or credit the account for any overpayment.

REAL PARTY IN INTEREST

ArvinMeritor Heavy Vehicle Systems (UK) Ltd. is the real party in interest of the present application. An assignment of all rights in the present application to ArvinMeritor Heavy Vehicle Systems (UK) Ltd. was executed by the inventors and recorded by the U.S. Patent and Trademark Office at Reel 015319, Frame 0732.

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RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences related to the present application of which the Appellants are aware.

STATUS OF CLAIMS

Claims 1-11, which are presented in the Appendix, stand finally rejected. Accordingly, the Appellants hereby appeal the final rejection of Claims 1-11.

STATUS OF AMENDMENTS

All amendments have been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates generally to a disc brake pad backplate assembly 133 including a backplate 134 including circumferentially spaced abutments 140 separated by a distance (paragraph 20) and a pad spring 124 including end portions 149 and a central portion 148 between the end portions 149. The circumferentially spaced abutments 140 of the backplate 134 restrain lateral movement of the end portions 149 of the pad spring 124 (paragraph 21). The assembly 133 further includes a retaining feature 150 to mount the pad spring 124 to the backplate 134, and at least one of the backplate 134 and the pad spring 124 includes the retaining feature 150 (paragraph 21). The pad spring 124 is dimensioned relative to the distance between the circumferentially spaced abutments 140 such that a radially inward loading applied at the central portion 148 of the pad spring 124 causes the pad spring 124 to function in a first resilient leaf spring-like mode where the end portions 149 of the pad spring 124 are unrestrained up to a predetermined load limit (paragraph 25). Above the predetermined load limit, the end portions 149 of the pad spring 124 are restrained by the circumferentially spaced abutments 140 of the backplate 134, and the pad spring 124 functions in a second buckling mode (paragraph 26). A first spring rate of the pad spring 124 in the first resilient leaf spring-like mode is lower than a second spring rate of the pad spring 124 in the second buckling mode (paragraph 10). This basic structure is set forth in independent claims 1, 10 and 11.

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GROUND OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Fischer (WO 92/00465).

ARGUMENTS

A. Anticipation rejection of Fischer

Claims 1-11

The Examiner finally rejected Claims 1-11 as being anticipated by Fischer (WO 92/00465). The Examiner states that Fischer discloses a disc brake pad backplate assembly including a pad spring having a resilient leaf-spring like mode and a second buckling mode, and therefore the claimed invention is anticipated. Appellant respectfully disagrees.

The present invention is patentable and strikingly different from Fischer. As described by the claims, the present invention provides a disc brake pad backplate assembly including a backplate having circumferentially spaced abutments and a pad spring dimensioned relative to a distance between the circumferentially spaced abutments that has a resilient leaf-spring like mode where end portions of the pad spring are unrestrained up to a predetermined limit and a second buckling mode where the end portions of the pad spring are restrained by the circumferentially spaced abutments of the backplate above the predetermined limit, the first spring rate being lower than the second spring rate. See Claim 1. Claims 1-11 of the present invention all share this same or similar feature. [See Claims 1-11].

The claimed invention is not anticipated by Fischer. Fischer does not disclose a disc brake pad backplate assembly including a pad spring having a resilient leaf-spring like mode where end portions of the pad spring are unrestrained up to a predetermined limit and a second buckling mode where the end portions of the pad spring are restrained by circumferentially spaced abutments of a backplate above the predetermined limit, the first spring rate being lower than the second spring rate. Fischer discloses a pad retaining system including a lining holder 1 and a leaf spring 5. The leaf spring 5 includes recesses 21 that receive clips 19 of the lining holder 1 to secure the leaf spring 5 to the lining holder 1 (paragraph bridging page 6 of the translation). Fischer does not disclose that the leaf spring 5 has more than one spring rate. The leaf spring 5 only operates in a leaf spring-like mode, and the leaf spring 5 does not operate in a

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buckling mode as claimed. Fischer does not disclose that the pad spring 5 has a resilient leaf-spring like mode where end portions of the pad spring are unrestrained up to a predetermined limit and a second buckling mode wherein the end portions of the pad spring are restrained by circumferentially spaced abutments of a backplate above the predetermined limit as claimed. The claimed invention is not anticipated.

Additionally, Fischer does not disclose a disc brake pad backplate assembly including a pad spring having end portions that are restrained by circumferentially spaced abutments of a backplate. In Fischer, the pad spring 5 includes ends 29 that are chamfered and point upwardly such that the ends 29 lie at the change-over to the clips 17 (page 8, third paragraph of the translation). When a middle part 15 of the leaf spring 5 deflects inwardly, the ends 29 of the leaf spring 5 slide over the clips 17. That is, there is no lateral restraint of the ends 29 of the leaf spring 5. Fischer only focuses on retaining the leaf spring 5 on the backplate 1 during pad replacement to avoid injury of the services personnel. Fischer does not disclose that the clips 17 laterally restrain the pad spring 5. Therefore, the leaf spring 5 also cannot operate in a second buckling mode having different spring rate. The claimed invention is not anticipated.

Finally, Fischer does not disclose a disc brake pad backplate assembly including a pad spring dimensioned relative to a distance between circumferentially spaced abutments of a backplate. Fischer does not disclose any relative dimensions of the leaf spring 5 relative to the clips 17 of the backplate 1, and therefore the leaf spring 5 cannot be dimensioned relative to the distance between the clips 17. The claimed invention is not anticipated, and Applicant respectfully requests that the rejection be withdrawn.

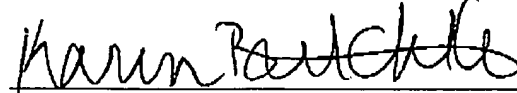
CONCLUSION

For these reasons, the final rejection of Claims 1-11 is improper and should be withdrawn.

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Respectfully Submitted,

CARLSON, GASKEY & OLDS, P.C.



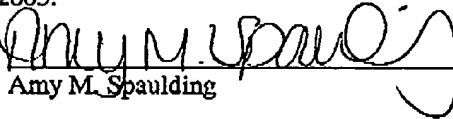
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Dated: October 17, 2005

CERTIFICATE OF FACSIMILE

I hereby certify that this appeal brief is being facsimile transmitted to the United States Patent and Trademark Office, 571-273-8300 on October 17, 2005.


Amy M. Spaulding

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CLAIM APPENDIX

1. A disc brake pad backplate assembly comprising:
a backplate including circumferentially spaced abutments separated by a distance;
a pad spring including end portions and a central portion between the end portions, wherein the circumferentially spaced abutments of the backplate restrain lateral movement of the end portions of the pad spring; and
a retaining feature to mount the pad spring to the backplate, wherein at least one of the backplate and the pad spring includes the retaining feature,
wherein the pad spring is dimensioned relative to the distance between the circumferentially spaced abutments such that a radially inward loading applied at the central portion of the pad spring causes the pad spring to function in a first resilient leaf spring-like mode where the end portions of the pad spring are unrestrained up to a predetermined load limit, and wherein above the predetermined load limit the end portions of the pad spring are restrained by the circumferentially spaced abutments of the backplate and the pad spring functions in a second buckling mode, and
wherein a first spring rate of the pad spring in the first resilient leaf spring-like mode is lower than a second spring rate of the pad spring in the second buckling mode.
2. The backplate assembly according to claim 1 wherein the pad spring further includes radially outwardly curved ends.
3. The backplate assembly according to claim 1 wherein the backplate further includes complementary curved abutment surfaces.
4. The backplate assembly according to claim 1 wherein the retaining feature is lugs.
5. The backplate assembly according to claim 4 wherein the backplate includes the lugs, and the lugs extend radially outwardly from the backplate.
6. The backplate assembly according to claim 4 wherein the backplate includes the lugs and the pad spring further includes complementary apertures that receive the lugs.

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7. The backplate assembly according to claim 6 wherein the lugs are the circumferentially spaced abutments.
8. The backplate assembly according to claim 1 wherein the pad spring has a curved profile.
9. The backplate according to claim 1 further including a pad strap, wherein the pad spring is retained by the pad strap.

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10. A disc brake comprising:

a backplate assembly including:

a backplate including circumferentially spaced abutments separated by a distance;

a pad spring including end portions and a central portion between the end portions, wherein the circumferentially spaced abutments of the backplate restrain lateral movement of the end portions of the pad spring; and

a retaining feature to mount the pad spring to the backplate, wherein at least one of the backplate and the pad spring includes the retaining feature,

wherein the pad spring is dimensioned relative to the distance between the circumferentially spaced abutments such that a radially inward loading applied at the central portion of the pad spring causes the pad spring to function in a first resilient leaf spring-like mode where the end portions of the pad spring are unrestrained up to a predetermined load limit, and wherein above the predetermined load limit the end portions of the pad spring are restrained by the circumferentially spaced abutments of the backplate and the pad spring functions in a second buckling mode, and

wherein a first spring rate of the pad spring in the first resilient leaf spring-like mode is lower than a second spring rate of the pad spring in the second buckling mode.

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11. A vehicle comprising;
a disc brake including a backplate assembly including:
 - a backplate including circumferentially spaced abutments separated by a distance;
 - a pad spring including end portions and a central portion between the end portions, wherein the circumferentially spaced abutments of the backplate restrain lateral movement of the end portions of the pad spring; and
 - a retaining feature to mount the pad spring to the backplate, wherein at least one of the backplate and the pad spring includes the retaining feature,wherein the pad spring is dimensioned relative to the distance between the circumferentially spaced abutments such that a radially inward loading applied at the central portion of the pad spring causes the pad spring to function in a first resilient leaf spring-like mode where the end portions of the pad spring are unrestrained up to a predetermined load limit, and wherein above the predetermined load limit the end portions of the pad spring are restrained by the circumferentially spaced abutments of the backplate and the pad spring functions in a second buckling mode, and
 - wherein a first spring rate of the pad spring in the first resilient leaf spring-like mode is lower than a second spring rate of the pad spring in the second buckling mode.

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EVIDENCE APPENDIX

None

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RELATED PROCEEDINGS APPENDIX

None